AMMOXIMATION OF CYCLOHEXANONE OVER Ag/TS-1 CATALYST

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ABSTRACT

TS-1 has been successfully modified by impregnation of Ag with loading’s variation 0.5%, 1%, 2% and 4%. Impregnation was carried out before and after calcination. The impregnation before and after calcination aimed to disperse Ag (1) at only particle/cristallite surface TS-1 and (2) on all surface TS-1. The catalysts then characterized using XRD, FTIR, and pyridine adsorption. XRD patterns revealed that all catalysts have high crystallinity with MFI structure and no other crystalline phase was observed. The infrared spectra showed that the tetrahedral titanium in TS-1 is still remained after impregnation with Ag. Pyridine adsorption technique showed that Lewis acid site are present in Ag/TS-1. Catalytic activities of the samples were studied in ammoximation of cyclohexanone with aqueous H₂O₂ in methanol solvent. It was found that the presence of Ag spesies in the catalysts enhanced the rate of formation of cyclohexanone oxime. The catalyst was optimized in various time, temperature and solvent.

Key words: Ammoximation cyclohexanone, cyclohexanone oxime, Ag/TS-1.